

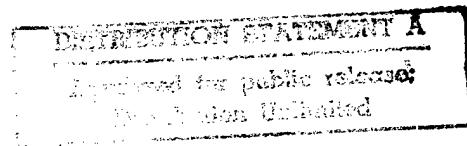
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JPRS-TAC-85-029

10 September 1985

Worldwide Report

ARMS CONTROL



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10 September 1985

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SDI AND SPACE ARMS

CANADA: 'NUCLEAR WINTER' RESEARCH FUELS STAR WARS OPPOSITION

Ottawa THE CITIZEN in English 16 Jul 85 p A2

[Text]

Douglas Roche, Canada's disarmament ambassador to the United Nations, said Monday the nuclear winter theory should compel the world to rid itself of nuclear weapons.

However, an official from the U.S. Defence Nuclear Agency, which co-ordinates the American Defence Department's nuclear research program, said the U.S. government's long-term objective in nuclear winter research was to find out whether there were types of nuclear exchanges that would not trigger nuclear winter.

Opposition politicians, meanwhile, said the nuclear winter scenario, with its potentially catastrophic effect on Canada, should prompt the Canadian government to refuse to participate in the U.S. government's Strategic Defence Initiative, or Star Wars, and to adopt a more independent defence policy.

Scientists from Canada and the United States involved in nuclear winter research plan to study a controlled forest fire near the Northern Ontario town of Chapleau to help test the nuclear winter theory.

Ontario natural resource offi-

cials, who are conducting the proscribed fire as part of a regular program to clear budworm-destroyed trees, announced Monday the burn was tentatively set for next Sunday or Monday, weather permitting.

The nuclear winter theory holds that nuclear bombs would spark massive firestorms in cities and forests that would spew so much smoke and soot into the sky, the northern hemisphere would be plunged into darkness and bitter cold for months, perhaps years. Crops and whole species of animals would be wiped out and nuclear survivors would face global starvation.

A recent report by the Royal Society of Canada concluded that Canada would be devastated by nuclear winter even if no bombs fell on Canadian soil. Even a small nuclear exchange between the superpowers would destroy Canadian agriculture, possibly beyond recovery, it said.

Roche said the message of the nuclear winter theory was "we must rid the world of nuclear weapons.

"It would be reckless for anyone to disregard the implications of nuclear winter," he said in a

telephone interview from his Edmonton home. "I would think the Royal Society report ought to be sufficient to convince any doubters of what's ahead in the event of a nuclear war."

Roche said all governments should work harder to encourage American and Soviet arms control negotiators to agree on a program to cut back their immense nuclear stockpiles.

However, Milton Gillespie, an official with the U.S. Defence Nuclear Agency, said the U.S. government's objective in funding nuclear winter research was to learn whether its nuclear weaponry could be used without triggering the nuclear winter effect.

NDP MP Steven Langdon, a member of the joint Commons committee holding summer hearings on the American invitation to participate in Star Wars research, said the nuclear winter theory should prompt Canada to refuse.

Liberal committee member Lloyd Axworthy said the nuclear winter theory should lead not only to a refusal to participate in Star Wars, but also to the development of a defence policy that is much more independent of the United States.

CSO: 5220/14

CANADA: CLARK TO HEAD CABINET COMMITTEE ON STAR WARS ROLE

Toronto THE SATURDAY STAR in English 6 Jul 85 p A3

[Article by Martin Cohn]

[Text]

BAIE COMEAU, Que. — A new cabinet committee will thrash out Canada's possible role in the controversial Star Wars scheme, External Affairs Minister Joe Clark says.

Under his leadership, 13 fellow cabinet ministers will consider Canadian involvement in the U.S. Strategic Defence Initiative for space-based warfare, Clark said yesterday.

Defence Minister and Deputy Prime Minister Erik Nielsen will serve as vice-chairman under Clark for the committee on foreign and defence policy.

The group is to meet next month to consider the government's response to a U.S. invitation for Canadian support and participation.

The issue is now being studied by a senior civil servant, Arthur Kroeger, who will report his findings later next month.

Prime Minister Brian Mulroney announced the new group's formation at a meeting of the cabinet's powerful priorities and planning committee in his home riding here yesterday.

Mulroney folded an existing foreign affairs committee when he came to power last fall, but said yesterday he is restoring it because "things change."

Clark, asked by a reporter whether his role would be reduced by the new committee, said, "No, I would say almost the contrary."

Cabinet rival

Any possible free trade pact with the United States would also be considered by the committee, which will include International Trade Minister James Kelleher. Kelleher is now studying the issue of reduced trade barriers with the U.S.

"Naturally, a lot of our attention, as that of other committees, will be given to Canada-U.S. questions, and particularly the work Mr. Kelleher is doing now," Clark told reporters.

However, a news release issued by Mulroney's office yesterday suggested otherwise. It said, "International trade policy matters will continue to be handled primarily by the cabinet committee on economic and regional development," which is headed by one of Clark's cabinet rivals, Sinclair Stevens.

Later yesterday, former prime minister Pierre Trudeau came under oblique criticism from Mulroney during the Prime Minis-

ter's tour of the Canadian Forces destroyer, Algonquin, which was docked here.

Stands in way

Speaking to about 230 sailors, Mulroney suggested that past underfunding of the forces by the former Liberal government was misguided.

"In the past, some people, I believe, failed to realize fully the significance of an upgraded, conventional fighting force and its contribution to peace," Mulroney said, without mentioning Trudeau directly.

Meanwhile, Mulroney said in an earlier interview that nothing stands in the way of private companies or universities in Canada that want to participate in Star Wars research.

Asked in an interview with the Financial Times of London whether there is anything "to prevent private companies in this country and universities taking part in the research," Mulroney said, "No."

CANADIAN PARLIAMENT HEARINGS ON STAR WARS PARTICIPATION

Halifax Hearing Opening

Ottawa THE CITIZEN in English 16 Jul 85 p A4

[Article by Julian Beltrame]

[Text]

HALIFAX — A special parliamentary committee on free trade and "Star Wars" opened in Halifax Monday with a warning from one of the members that an arbitrary fall deadline on the issues imperils Canada's ability to choose responsibly.

Lloyd Axworthy, regional economic development critic in the Liberal shadow cabinet, said in an interview a so-called "temporary window of opportunity" to negotiate free trade with the U.S. is "sheer pressure tactics from propagandists."

The committee, which will visit seven Canadian cities and must report to the government before Aug. 23, received submissions on free trade Monday.

Today, the all-party committee was to focus its attention on the more controversial question of whether Canada should participate in research to help develop U.S. President Reagan's multi-billion-dollar Star Wars umbrella against nuclear attack, formally known as the Strategic Defence Initiative.

But already, opposition members are expressing serious concerns about the haste with which the Mulroney government wants to proceed on the complex and

far-reaching issues and the committee has split down political lines.

Liberals and New Democrats criticized free-trade initiatives and SDI research Monday, while the majority Conservative members seemed determined to put the best foot forward on both proposals.

Axworthy and NDP member Steve Langdon (Essex-Windsor) questioned the ability of the committee to influence government policy.

Langdon said the committee's one useful role may be as "a last chance for Canadians to comment on two key issues before government momentum takes us to 'yes' answers on the two questions."

Both opposition parties had initially vowed to boycott the committee because they believed the government's mind was set. They agreed to join the hearings only after External Affairs Minister Joe Clark pledged to hold off any decision until the fall.

While a broad consensus may develop on "Star Wars" — Liberals and the NDP are firmly opposed while the Conservative government now appears to be waffling — it's doubtful such a happy resolution can be attained on the confusing question of free trade.

Halifax Second Day

Toronto THE TORONTO STAR in English 17 Jul 85 p A12

[Article by David Crane]

[Text] HALIFAX — A parade of witnesses, including veterans, women and peace advocates, have lined up here to tell a parliamentary committee that Canada should refuse U.S. President Ronald Reagan's invitation to participate in the Star Wars project.

In their hearings yesterday committee members heard Cuthbert Gifford, a former squadron leader who now heads the Veterans for Multilateral Nuclear Disarmament, denounce the Star Wars project as "the ultimate tool to encourage complacency about the nuclear arms race."

Gifford, who won a Distinguished Flying Cross in World War II when he was a member of the Pathfinder precision-bombing group, asserted it was against Canada's interest to play this game.

"To give it legitimacy by scrambling after some of the research crumbs from the Star Wars table would be a form of national prostitution."

The controversial U.S. proposal envisages the use of supercomputers, space satellites and laser beams to destroy Soviet intercontinental missiles in space. Reagan is seeking \$36 billion (Canadian) from Congress to fund a massive research and development program to determine feasibility and has invited U.S. allies and their high-tech industries to participate.

Suspend decision

The Mulroney government, debating its response, was forced by Liberal and NDP MPs to agree to suspend a final decision until public hearings had been held. A special parliamentary committee is now on a three-week cross-Canada trek to hear what Canadians have to say on Star Wars and on Canada-U.S. free trade.

Marion Kierns, speaking for the Coalition of Canadian Women's Groups, told the committee, "we are on the wrong track on defence. The dinosaurs were on the wrong track as well and we don't want to join them."

Kierns told the committee of a conference of 350 women from 35 countries held last month at Mount Saint Vincent University in Halifax to discuss the arms race.

The women passed resolutions urging Canada to refuse participation in Star Wars and to demilitarize the Arctic.

Among the other speakers:

Anthony Law, spokesman for his local Project Ploughshares Group, told the MPs and

senators that "every minute 30 children die from lack of food and health care. Every minute over \$1 million is consumed by military budgets. "Does it now make common sense — or moral sense — to support the most extravagant military research project of all time?"

He urged that Canada decline participation, prohibit Canadian companies and universities from participation and withhold government grants for related projects.

Gillian Thomas, of St. Mary's University, Halifax, leading a delegation from the Halifax Voice of Women, told the parliamentary committee that if Canada participates in the Star Wars arms race "we will lose prestige as an independent country and be perceived as merely a satellite of the U.S. locked into their military and economic policies."

Other witnesses, including a retired admiral and two foreign policy experts from Dalhousie University, called for Canadian participation, arguing Canada would have more influence over U.S. foreign and defence policy by being in on the inside than sitting out on the outside.

Retired Vice-Admiral J. Andrew Fulton told the committee that Canada had no real choice but to participate in the Star Wars program. The Americans will proceed whether or not Canada and Europe participate. But, Fulton said, "the new technology and scientific discoveries that are made as a result of their SDI investigations will only be available to those that participate with them."

Useful results

Even if the research shows the Star Wars system is impossible to build, there will still be useful research results which can improve the present system, Fulton argued.

Participation by private sector Canadian companies was endorsed by Joel Sokolsky of Dalhousie University's Centre for Foreign Policy Studies. But he told the committee that government funding should be limited to "SDI research, such as in space-based surveillance and warning, where technology benefits Canada directly."

Dan Middlemiss, a Dalhousie University political scientist, argued that "limited research involvement in SDI is acceptable for the present, but Ottawa should maintain a healthy, albeit not necessarily shrill or obstructionist, skepticism towards long-run SDI participation."

Ottawa Hearing

Toronto THE GLOBE AND MAIL in English 19 Jul 85 p 5

[Article by Barbara Yaffe]

[Text] OTTAWA — The U.S. Star Wars program will not be a good creator of jobs, the Canadian Labor Congress told a special Commons committee yesterday. And even if it were, the CLC would not want such jobs for Canadians.

Richard Martin, vice-president of the 1.2-million-member CLC, told a joint committee of MPs and senators yesterday: "Military research and development is not a job creator of consequence. But even if it were, we would still oppose it.

"More jobs in a world made more dangerous is not a goal of the CLC, nor should it be for Canada."

The 17-member, all-party committee, now on a tour to hold hearings in seven cities, is to present a report to Parliament by Aug. 23. It is receiving testimony from the public on bilateral trade with the United States, and on the Strategic Defence Initiative, commonly known as Star Wars. The committee began its work on Monday in Halifax.

Testimony from several special interest groups yesterday urged parliamentarians to oppose Government endorsement of the Star Wars project.

Most witnesses also rejected the idea of allowing Canadian-based companies, universities and Government institutions to bid on research contracts or participate in any way.

"There has to be a mandate that no one in this country participates in SDI research, otherwise it would be quite meaningless," Mr. Martin said. He said that if the billions of dollars to be spent on Star Wars research were put into education, health care or housing "you would get far more jobs."

David Horwood, a computer specialist, told reporters outside the committee room: "If this system is deployed, I don't know about the rest of you, (but) I'll never feel safe again."

Mr. Horwood, in a brief to the committee, said a consensus has built among computer scientists in Canada and the United States in opposition to Star Wars. "If SDI is deployed, it would be controlled and driven by the largest, most complex system ever designed or built and . . . the system is certain to be unreliable."

Mr. Horwood said the computer system's decision to respond to an oncoming missile would be programmed and instantaneous, and impossible to abort.

Al Roycroft, a software consultant, agreed with Mr. Horwood and warned the

committee that accidents are inevitable. He said no one could have foreseen systems failures such as at Three Mile Island or the triggering of the NORAD warning system by a flock of geese.

Mr. Roycroft said: "Star Wars systems will accelerate present trends toward faster paced warfare and shrinking decision times . . . such systems will be at least as prone to error as other complex systems."

James Stark, president of Operation Dismantle, the country's main umbrella organization of peace groups, predicted the Star Wars program "will be the last great military hoax, fraud and boondoggle of the nuclear age."

He said if the Conservative Government endorses the program it "would be the best thing that could possibly happen in terms of building the peace movement. It would provide a lovely fat target that we would take some pleasure in shooting down. Please, say no to SDI."

John Halstead, a member of the Canadian Institute of International Affairs, urged the committee to recommend that Canada initiate a NATO committee on SDI.

Mr. Halstead said, "We should accept that it is only prudent for the U.S. to undertake research into strategic defence systems," and if Canadian companies are forbidden from partaking in the research effort, that would signal Canada's disapproval of the program.

Mr. Halstead said the private sector should, therefore, be free to participate. Canada could ensure it has a future say in the direction of the SDI program by seeking out NATO allies and forming a committee, he said.

Thomas Hockin, chairman of the committee, asked Mr. Halstead whether he thought President Ronald Reagan's illness might affect the American initiative on Star Wars.

Mr. Halstead said he doubted it and noted decisions resulting from SDI research would not be made for four or five years.

Mr. Hockin told reporters later he is curious about the issue and will continue putting the question to other witnesses. "I must say, if you change presidents there is a lot of questions you then have to ask the new president. . . . If you've been invited to come to an event and if the person who issued the invitation is gone, or can't fulfill it anymore, then you have to ask whether the new person is still inviting you."

Ottawa Second Day

Ottawa THE WEEKEND CITIZEN in English 20 Jul 85 p A4

[Article by Jim Robb]

[Text]

Canada should steer clear of any involvement in the \$26-billion Star Wars research project, because of its potential dangers for this country, a United Nations disarmament expert urged Friday.

William Epstein warned if the United States proceeds to develop and deploy the space-based shield against missile attack the Soviet Union "would no doubt" fit special fuses to their warheads so the missiles would explode as they were being destroyed by Star Wars laser weapons and particle beam weapons.

"This could cause direct damage to Canada even if the missiles ... were destroyed," he said.

Epstein, 73, was speaking to an all-party parliamentary committee investigating possible Canadian participation in Star Wars.

He said this country should "withhold any participation in any aspect of SDI" (the Strategic Defence Initiative or Star Wars).

Epstein, a native of Alberta, joined the United Nations in 1946 and has had a lengthy career in the field of arms control and disarmament. He was named special consultant on disarmament to the UN secretary general in 1973.

Now a fellow of the UN institute for training and research, Epstein said he was presenting his personal views to the committee. He is chairman of the Canadian Pugwash Group and is on the board of the Canadian Institute for Peace and Security, established in 1984 by the former Liberal government.

Epstein said Canada should urge the two superpowers to comply with the 1972 Anti-Ballistic Missile treaty and agree on research limits for space-based defence systems.

Canada should insist the Soviet Union and the United States meet the terms of the test ban and outer space treaties and work for agreement on a treaty banning the testing, de-

ployment and use of anti-satellite weapons, he said.

Epstein said Canada should consult extensively with NATO allies and Japan for support for such efforts.

Canada should also push for a UN debate on "the entire problem of outer space and nuclear weapons," he said.

NDP MP Steven Langdon, who has stated Star Wars research might already be under way by Canadian subsidiaries of U.S. Star Wars contractors in Canada, admitted he can find no evidence Canadian firms are doing such work.

The parliamentary committee, to report Aug. 23, heard strongly-held opposing views from supporters and opponents of Star Wars in a pattern that has developed at its hearings here and in Halifax.

Defence experts and industry groups generally support participation in the controversial research program because of the potential for jobs and fears Canada will lose technology transfers if it doesn't go along and that relations with the United States will suffer. They also claim that Star Wars is not destabilizing because the Soviet Union has its own research program into ballistic missile defences.

The peace groups oppose Star Wars on moral and philosophical grounds, say it will lead to an escalated arms race, destabilize the balance of terror that now exists in nuclear weapons and claim few jobs and benefits for Canada will result from participation.

In between are fewer groups, like the Canadian Centre for Arms Control and Disarmament, that say Canada should not participate officially but should allow Canadian companies to accept Star Wars contracts.

The Liberals and NDP oppose Canadian participation in the scheme.

The committee takes its hearings next week to Montreal, Toronto, then travels in the following week to Vancouver, Calgary and Winnipeg.

CSO: 5220/14

CANADIAN POLL RESULTS MIXED ON 'STAR WARS' PARTICIPATION

Reid Poll

Ottawa THE WEEKEND CITIZEN in English 29 Jun 85 p B5

[Text]

Canadians are split right down the middle — older and poorer on one side, younger and more affluent on the other — over their government's involvement in the American Star Wars project, the Reid poll concludes.

Canada has not yet formally committed itself to research involvement in the project, formally known as the Strategic Defence Initiative, which involves development of a space-based laser system to shoot down incoming nuclear-tipped missiles.

Defence Minister Erik Nielsen has, however, pronounced it acceptable for any Canadian firm to accept research contracts, and the government has appointed Arthur Kroeger, a senior public servant, to study government involvement.

The Reid poll shows "Canadians are almost equally divided in

their support/opposition," and that the split is "especially marked across both income and age lines."

Over-all, 36 per cent of the 1,892 polled approved of participation, and 39 per cent disapproved. Twenty-five per cent had not formed an opinion or would not say.

"Older Canadians and poorer Canadians appear concerned about the extent to which Canada's involvement may increase the risk of nuclear war," says Reid, "and are also concerned about the possible damage to Canada's image abroad that would result from too close an association with this controversial initiative of the Reagan government."

Supporting the idea are younger and better off Canadians. To

them, jobs is the issue.

They "look more to the opportunities of the Strategic Defence Initiative in areas such as job creation and the development of Canada's high-technology companies," says Reid.

Of the people asked, 29 per cent said Canada's participation would help, to one degree or another, in reducing the risk of nuclear war. Thirty-five per cent said it would hurt.

On the question of how participation would affect Canada's reputation abroad, 36 per cent thought it would help, while 44 per cent thought Canada's image in the world would be damaged.

The poll notes, however, that even in that category, women "are significantly less inclined" to approve of Star Wars on an economic basis.

Gallup Poll

Ottawa THE CITIZEN in English 8 Jul 85 p A4

[Text]

Slightly more than half the population believes Canada should become involved in research for Star Wars, U.S. President Ronald Reagan's plan to develop an American space-based defence against nuclear attack, the Gallup Poll said today.

But in a public opinion poll conducted in mid-May, Gallup found that only 39 per cent believe Star Wars will make the world a safer place.

Gallup interviewers first asked this question: *"Have you heard or read anything about the American plan to develop a space-based defence against nuclear attack — popularly known as Star Wars?"*

	All	Men	Women
Yes, aware	81	90	73
No, not aware	19	11	27

Those who claimed awareness were asked: *"In your opinion, should Canada become involved in research on this Star Wars project, or not?"*

	All	Men	Women
Yes	53	61	44
No	40	35	45
Can't say	7	4	11

Finally, the aware group was asked: *"Do you think development of this space-based defence system will make the world safer from nuclear destruction, or less safe?"*

	All	Men	Women
Safer	39	44	34
Less safe	41	39	43
Can't say	20	17	23

(The poll results are based on 1,039 at-home interviews of adults 18 years and over conducted between May 16 and 18. Gallup says that a sample of this size is accurate within a four-percentage-point margin, 19 in 20 times.)

CSO: 5220/14

SDI AND SPACE ARMS

CANADIAN COMPANIES URGE GOVERNMENT TO SUPPORT SDI

Ottawa THE CITIZEN in English 8 Jul 85

[Article by Deborah McGregor]

[Text]

Many Canadian companies that stand to benefit from the \$26 billion United States "Star Wars" program have been close-mouthed on the issue, until recently.

But now, facing a growing backlash of protectionist sentiment in the U.S. and growing public opposition to Star Wars at home, the firms have broken the silence and are openly urging the federal government to support the strategic defence initiative (SDI).

"We feel we will be closed out of important opportunities for technological advancement if we do not participate," says Kenneth Lewis, president of the Aerospace Industry Association of Canada.

The government is not expected to announce before the end of the summer whether it supports Star Wars. Arthur Kroeger, the veteran civil servant charged with figuring out what Star

Wars participation would mean to Canada, has been attempting to nail down the economic and technological implications of the project.

It has not been easy.

"Nobody really has any very good idea of what the hell is being talked about here," says one industry source familiar with the government's probe. Still, many aerospace and electronics industry executives believe Canadian companies would be put at a serious disadvantage if they could not participate in Star Wars research.

Canada's areas of expertise tend to be in so-called "non-aggressive" areas, including communications, signals-processing, specialty antennae, microprocessors, and robotics (such as Canadarm).

Some industry executives feel the public has been misled to believe Canadian firms would suddenly be

testing Buck Rogers-type technologies.

"There's no one in Canada who's going to be suddenly out firing missiles or zapping laser beams around," says Dr. John Macdonald chairman of MacDonald, Dettwiler and Associates Ltd. of Richmond, B.C., a space technology firm with annual sales of \$30 million.

Still, with bagfuls of anti-Star Wars letters flowing into ministers' offices, the politics of the issue are as sensitive as ever — so much so, in fact, that Canada's biggest potential Star Warriors, such as Spar Aerospace Ltd. and Litton Systems Canada Ltd., still refuse to talk about it.

Bidding, however, is going ahead on research that could prove to have Star Wars implications. CN Communications and Microlab Ltd. of Burnaby, B.C., recently announced their joint bid for the \$220-million communications

segment of the North Warning System in the Arctic.

The work is part of the \$1.6-billion upgrading of the Distant Early Warning (DEW) line, of which Canada will contribute \$700 million as agreed by Canada and the U.S. in March.

With the government yet to make up its mind, most of the discussion of Star Wars is turning on the question of jobs. While solid numbers are all but impossible to come by, Ernest Regehr, research director at the University of Waterloo's Institute for Peace and Conflict Studies, has produced what are probably the best guesses available.

Regehr estimates Canadian participation in Star Wars research would create about 500 jobs a year, or about 2,500 jobs over the five-year life of the project.

He bases his estimate on the assumption that Canada would land about \$100 million annually in SDI-related contracts. That represents Canada's portion of the amount likely to be sourced from foreign (non-American) companies.

Regehr says American companies, in line with past defence contract practices, will

probably allot roughly 10 per cent of the \$25 billion to \$30 billion in Star Wars research over a five-year period to foreign firms.

Last year, Canadian companies sold the Americans \$1.4 billion in military goods.

Regehr and others contend that the government's official response to Star Wars could have a great impact on whether Canadian companies get Star Wars-related business. If Prime Minister Brian Mulroney does not give Ronald Reagan the political support the president is seeking on Star Wars, it's felt that the displeasure could trickle down to the procurement levels of the defence bureaucracy.

Says MacDonald of MacDonald, Dettwiler and Associates: "There's no question it (lack of government blessing) would make it more difficult. Not impossible, but certainly more difficult."

Beyond the current debate lies the broader question of whether Star Wars is even technically feasible.

In order for the defence system to work, it will require a computer to execute 10 million instructions in just a few seconds.

CSO: 5220/14

SDI AND SPACE ARMS

SENIOR FRG OFFICIAL URGES INDUSTRY TO ACCEPT SDI CHALLENGE

Duesseldorf HANDELSBLATT in German 28 Jun 85 p 24

[Article by Dr Konrad Seitz, director of Foreign Office Planning Staff: "The Economy Must Seize the Opportunity"]

[Text] In the view of the leading United States, American-European cooperation in the defense of the earth from space will give European industry developmental impulses similar to those received by American industry after the Sputnik shock of 1957 when, in 1961, Kennedy established the goal of putting a man on the moon before the end of that decade. It happened on 21 July 1969. At the preliminary end of this tremendous technology program is the American Space Shuttle, with which the Europeans first put their joint space laboratory Spacelab into orbit in 1983.

Strategic and political questions are at the center of the debate on President Reagan's Strategic Defense Initiative [SDI].

With this debate, however, Europe must not lose sight of a totally different aspect of SDI: the technological follow-up effects of the SDI research program. For the research efforts that are undertaken here could make a decisive contribution to producing that technological push that is propelling the American economy into the 21st century and leaving Europe behind for good. This is the technological challenge to Europe through SDI. It is acute and requires a rapid European response.

For the third time within the last 40 years, the United States is putting into effect a comprehensive technology program. The first of these programs was the Manhattan Project during World War II--the development of the atomic bomb and, as a result, of civilian nuclear technology. The Sputnik shock of 1957 then initiated the second great technological effort. It received its transcendental vision through the Apollo Program--the landing on the moon. And now, at the start of the 1980's, Reagan's America is beginning a third technological leap.

At the center of the new effort is the SDI research program. In addition, there is the NASA project for a permanently manned space station. Both large-

scale programs are accompanied and supplemented by a wealth of other research and development programs. Among them are three prominent military programs:

--The VHSIC Program (Very-High-Speed Integrated Circuits) for developing the fastest integrated circuits.

--The Software Technology Program(STARS), whose goal is to establish computer-aided techniques and methods for the development of software and, at the same time, to lower the costs of software development to one-tenth.

--The Strategic Computing Program with the goal of superfast computers and fifth-generation computers that take the step from data processing to the processing of knowledge.

The main emphasis of the round of technology of the 1980's is in military research. Expenditures there have more than doubled between 1980 and 1985. According to 1986 appropriations, 72 percent (\$42.3 billion) of the total of \$58.2 billion in research and development expenditures in the American federal budget would go for defense research.

Critics object that such a high proportion of military research pulls researchers and engineers out of the civilian areas of the economy and results in the neglect of the development of civilian products. As serious as the objections are, one should not allow them to make one lose sight of what is decisive: up until World War I and even until World War II, seen as a whole, civilian and military technologies went separate ways. There were not many spin-offs from the building of cannons. Since then, however, military research has become the driving force behind most leading-edge technologies. This is especially true for the SDI research program.

The goal of a perfect space-based antiballistic defense puts the most extreme demands ever on technology. Most of the needed technologies would have to be made 10 to 100 times more efficient relative to today's level. But the technologies involved here are also key technologies for the civilian economy and are those important technologies of the future that are leading the economy and the society into the information age: information and communications technology, optical sensors, radar, lasers, new materials, rocket-propulsion systems, space logistics, etc. It may be doubtful whether the increased performance required by SDI can be achieved everywhere. But there is no doubt that the SDI research program will make a substantial contribution to advancing American technology by one or two generations and to raising the American economy as a whole, the defense industry and the civilian economy to a new level.

A few examples may illustrate this:

--Optical sensors (wave lengths from ultraviolet to infrared): a key technology here involves the focal-plane arrays, that is, the combining of a large number of sensor cells into image-field mosaics. Today's level of technology in the United States makes it possible to combine several thousand sensor cells, whereas several hundred can be combined in Europe. SDI calls for the combination of a million or more cells.

The signals emanating from these million individual sensor cells must be processed. Here it is a matter of integrating "intelligence" forward into the sensor to make possible an advance selection of relevant data.

However, focal-plane arrays and integrated sensor intelligence are technologies of great importance not only for SDI but also for conventional military technology as a whole and for civilian technology: measuring, control and automatic control technology, robotics, medical technology, and earth reconnaissance from space. Sensor technology has become a key technology for industrial production.

--High-energy lasers: this SDI research area as well has considerable importance for defense technology as a whole (antimissile and anti-guided missile defense, among others). Laser technology is likewise one of the new technologies of the future for the civilian economy (including material processing and production technology). A breakthrough in the cost-effective production of high-energy lasers could be a breakthrough on the way to controlled nuclear fusion, with which mankind's energy problem would be solved.

--Transport systems for space: a precondition for the feasibility of a space-based antiballistic system is an inexpensive cargo transport into space. Otherwise, the question of whether a defensive system can be cheaper than an offensive system would be settled from the outset. So, then, one of the first tasks of the SDI research program is to lower the costs for space transport by 90 percent (!) through a new generation of transport rockets. Such a breakthrough to cheap space transport for SDI would simultaneously be a breakthrough in the direction of the industrial utilization of space and the moon.

--Computers: SDI requires the computer of the fifth or sixth generation. This means supercomputers with processing speeds a thousand times faster than those heretofore achieved. This also means miniaturized maximum-capacity computers such as those needed for use in space satellites. This means computers at the command center that can accept instructions in naturally spoken language and respond in language. This means above all computers with "artificial intelligence" that no longer merely process data but also process knowledge and draw conclusions. If, under the pressure of the SDI vision, one is successful in developing computers of the fifth and sixth generations, then this would bring us the information age in its entire scope.

In accordance with government plans, \$26 billion are to be spent for the SDI research program in the 5-year period 1985-1989. In all probability, this sum will be cut substantially by Congress.

As much as SDI's demands on technology are making it a symbol of the technological challenge, it is, from the point of view of the monetary resources expended, only part of this challenge. The challenge in its entirety is the tremendous research boom in the United States. In the calendar year 1985, government, industry and universities will spend more than \$107 billion for research (FRG: DM53.2 billion = just under \$18 billion).

A drastic change has thereby taken place in the public research and development expenditures of the United States. In the decade 1965-1975, these expenditures declined by 17 percent in real terms, but then they began to increase slowly and have been rising rapidly in recent years: +13 percent and +9 percent (in real terms) in the fiscal years 1984 and 1985, respectively. According to an estimate by the Battelle Institute, the U.S. Government will spend \$48.7 billion--about DM 150 billion--for research and development in the calendar year 1985 and will thus have a 45.4 percent share in the financing of total research and development expenditures. In the FRG, in contrast, the Federal Government, Lands and municipalities will spend DM21.1 billion for research, which is less than one-seventh of the American sum.

In addition to the acceleration of American research and development expenditures and especially the steep rise in public research and development expenditures, there has been a second important change: in the 1950's, 1960's and 1970's, there was relatively easy access to American technology. Japan developed its semiconductor industry with the help of American licenses. The 1980's, however, brought the "semiconductor shock." The Americans were forced to experience how Japan is driving them from their own market for the memory chips. Since then, there has been no more liberal issuance of licenses of American industry. Last year, when the U.S. electronics concern Motorola publicly announced a new generation of microprocessors, it added that unlike previously, it will sell no more licenses but is interested in the exchange of technology. Woe to the one who has nothing to trade!

Operating in the same direction is the experience of the Pentagon that the legal and illegal transfer of technology from the West has been of considerable help to the Soviet Union in keeping up in defense technology. The result has been a determined policy since the beginning of the 1980's to prevent the drain of militarily relevant technology to the East. Also affected by this policy is the trading in advanced technology within the West, trading that is now a great deal more strictly controlled than before. Access to American technology is also made more difficult by the fact that more and more basic and applied research is financed out of the defense budget. For even when it is not classified as secret, this research is often accessible only to U.S. citizens. Thus, for example, research in the sensor technology important for SDI is subject to strict information barriers. There are increasing complaints by Europeans that at scientific conferences in America foreigners are either not admitted at all or important research papers are in any case declared secret.

Thus two new factors now characterize the competitive situation for Europe in advanced technological research: increased American public research efforts that are systematically concentrated on the key technologies of the future and more stringent conditions for access to American research results and for the acquisition of licenses. The danger is looming that in the 1990's Europe will face new technologies and new products developed from these technologies, about which it had no idea and which it cannot buy in the normal licensing trade. This is the challenge symbolized by SDI, even though it is not entirely the result of SDI. How can Europe respond to it?

The first thought in Europe was: Is it not possible for Europe to make use of the SDI research program and, by participating, ensure that it shares in the expected technological leaps?

But what specifically can participation mean? One can distinguish three forms of participation:

--The Europeans take over and, together with the United States, finance the research for a European part of the SDI antiballistic defense system.

--In a consortium with American companies, the Germans/Europeans take over--here, too, with shared financing--the project leadership for a subsystem within the SDI research program.

--German/European enterprises, research institutes, and universities receive, with American financing, research contracts in individual areas, namely, where they are "excellent," to quote a formulation of Weinberger's letter of invitation.

In the case of research for a "European SDI," the question arises: Does this make sense? Even for America, it will hardly be possible to implement a broad antiballistic defense system that can protect the population. But the obstacles that one would face in developing a protective screen for Europe are much greater. The flight times of the missiles are shorter. And above all, the nuclear threat is more varied: SS-20 intermediate-range missiles, the short-range missiles SS-21 through SS-23, the large number of combat aircraft with a nuclear capability, and nuclear artillery. In addition, Europe is threatened by the conventional armed forces of the Warsaw Pact.

So if not a European SDI, how about a European project leadership for a subarea of the American SDI, a subarea in which there is a large spin-off for the civilian economy--optical sensors or larger tasks within the SDI data processing and communications system, for example?

The idea is good. But is it realistic as well? A financial and technological participation in such a large scope would, to a large extent, be seen not only as an identification with the SDI research program but also as an identification with the goal of SDI: the establishment of an antiballistic defense system in space. Are the European governments prepared for that? And, on the other hand, is the U.S. Government prepared to give the Europeans project leadership in SDI subsystems in which European industry is interested because of the civilian spin-off but American industry as a whole is technologically superior? And even if the U.S. Government wanted this, would American industry then be prepared, within the limits of the cooperation, to provide technologies for such a subsystem and to grant licenses to European industry for their civilian application? It is precisely this civilian technology transfer that would interest the Europeans, for otherwise they could better spend their money for their own research programs with their own goals.

Remaining, then, are individual research contracts for European enterprises and research teams--there, where Europe has something special to offer.

Indeed, all of the concepts that the U.S. Government has so far revealed in the question of a European participation go in this direction only.

Such smaller research contracts can certainly benefit the European firms. Whether they also benefit the national economies of Europe or, on the contrary, divert research capacities away from European tasks depends upon the individual case and the specific conditions of the contract. In any case, however, it is certain that this kind of participation will not elevate one to a new technological stage. One must rise to that stage on his own. In this connection, there is no need to prove that the power of an individual European country is insufficient and that one can succeed in this only if the Europeans combine their strengths.

What we need is a European initiative for the creation of a joint capacity for research and technology. With the "Eureka" initiative, the French and German foreign ministers have made a new start toward this goal. Although the original French idea was to establish a European agency for research and development, under German influence agreement was quickly reached to go the way of specific projects instead. For the cooperation, the principle of "geometrie variable" is to be in operation, that is, any European state within or outside of the EEC can participate that is prepared to commit itself to a particular project. This way makes possible the necessary speed and flexibility of action.

Of crucial importance for success is that one concentrate on a few projects and that these projects are applied specifically to those key technologies from which the third industrial revolution is emanating. That means, then: fifth-generation computers, silicon-based 64-megabit memory chips, gallium arsenide-based maximum-speed circuits, "intelligent" sensors and the next robot generation, laser technology, and new biotechnology.

A large-scale umbrella project should be at the center of all these research programs, a project that makes visible and symbolizes for the citizens the movement toward a highly technological Europe and that motivates young people and researchers to apply their strengths. One must first of all think about developing the existing European space program into a truly comprehensive program and about giving it the goal of an unmanned or manned space station. In such a project, practically all areas of information and communications technology, sensor technology, robotics, and the new materials technology would flow together. Space is the new dimension of human history. Just as the conquest of the oceans has decided the ranking of the nations since the 16th century, the opening up of space in the 21st century will help determine the new hierarchy. Only if Europe becomes the third space power along with the United States and the Soviet Union, will it be able to continue to have a say and exercise influence on earth.

Eureka is oriented toward civilian projects. European projects in defense cooperation should be parallel to this. The European NATO members spend \$6 billion to \$7 billion annually for military research and development. Here as well, national egoism must finally be overcome and one must--in the framework of NATO strategy--come to an agreement on a European defense initiative that utilizes the new technologies for three important goals:

--Establishment of an integrated air defense (against aircraft, guided missiles and other missiles) together with the Americans. This would above all have the task of protecting the defensive system in Europe against a disarming strike, for which the opposing side may well have accurate missiles with conventional warheads as well in the next decade.

An integrated air defense system would be ground based and would have military and political tasks other than the space-based Strategic Defense System of the United States, which is striving for area and population protection. Technologically, however, there would be much overlapping with the SDI research program, and this could make possible a comprehensive exchange of technology.

--Development of "intelligent" weapons that seek their targets on their own and development of the reconnaissance and delivery systems for NATO's FOFA [follow-on forces attack] concept for the far-reaching defense against the second enemy echelon.

--Development of the European multisensor-observation satellite that is currently the subject of discussion between France and the FRG. An observation-satellite system could likewise be used for important civilian tasks such as environmental protection, ground exploration in general, and navigation.

A combination of Eureka and European Defense Initiative, as here proposed, should also give Europe the possibility of those same technological leaps that SDI and the NASA project of the manned space station are promising for America. At the same time, it would make Europe an equal partner of the United States and pave the way to a large-scale exchange of technology.

The technological challenge through SDI is beginning to rouse the Europeans. If they find the strength to respond to the challenge with large-scale cooperation in advanced technology in the civilian and military areas, then SDI would have an unimagined effect of world-political importance: the establishment of a Europe that could be an equal partner of America in the North Atlantic Alliance and a real force for peace in the world.

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CSO: 5200/2722

SDI AND SPACE ARMS

FRANCE'S GENESTE SEES STABILIZING EFFECT IN SDI

Paris POLITIQUE INTERNATIONALE in French Spring 85 pp 301-311

[Article: "Selective Disarmament Through Arms?"; by Marc Geneste, vice president of Total Strategy Studies Society and co-author, with Sam Cohen, of "Echec a la guerre" [In Defeat of War], Editions Copernic, 1980]

[Text] End of the B 52's

One by one, inexorably, the U.S. Air Force's B 52's are being scrapped. They are suffering the fate of their predecessors, the medium-range B 47's that not so long ago surrounded the USSR on all sides. They in turn had replaced the B 36's, the successors of the World War 2 Flying Fortresses. Technological advances are merciless. And so, the billions of dollars invested in these weapons systems go up in smoke after a certain period of time.

Not that the principle of the manned bomber has been replaced by a more effective system for delivering the warhead over the target. As compared with the ICBM's, the B 52 had several very significant operational advantages: It could turn back halfway to the target in the event of an order to abort its mission; change targets in flight; choose its own target, if need be, at the last moment; be used as effectively for conventional warfare--as was seen in Vietnam--as for nuclear warfare. And, it could be used again and again...

What is condemning the B 52, therefore, is not its irreplaceable qualities as a bomber. The proof of this is that a successor to it is being sought, the supersonic B 1. The B 52, like all its predecessors, has been condemned because of a major shortcoming: Its growing vulnerability to the new means of defense. A rocket can destroy it on the ground, at airfields; in flight, it can be the prey of modern fighter planes and of DCA [anti-aircraft defense] missile systems, the proliferation and modernization of which have never ceased in the USSR. In short, its speed is insufficient. These instruments of the offensive, not so long ago the basic weapon of the American Strategic Air Command, are thus now very amply outdated. What one sees at work in this is a concrete phenomenon of disarmament being rendered ineluctable by technology, much more surely than it could possibly have been by political negotiations on limiting manned bombers.

Suffice it, thus, to find, or merely perceive, the way to parry all imaginable advances in the realm of the military offensive--the latter being, politically, the sole justification for resorting to war--and governments will be more willing to halt the ruinous offensive-weapons race they have been waging for the last 30 years. Disarm forcibly, since it is impossible to do it willingly...

And in fact, revolutionary new technological advances are now looming that perhaps could achieve this result: Radiation weapons. Provided, of course, that two conditions are met: They must work (which has not yet been fully demonstrated); and their ultimate purpose must stop generating the widespread misconception to which they seem to have given rise, particularly in Europe (a misconception that is being cleverly maintained by the Soviet Union for reasons that are easily fathomed).

The Misconception

When the President of the United States delivered his celebrated speech of 23 March 1983, announcing to all the world the major shift in American strategy--from that of MAD [Mutual Assured Destruction] to MAS [Mutual Assured Survival]--he at no time made the slightest allusion to the methods being contemplated, and certainly not to any "militarization of space" whatever. Not a single word in that speech suggested that the technical solution being proposed to do away with the threat of ICBM's and other instruments of the nuclear holocaust were to be based in space.

This, nevertheless, was what Western press as a whole (beginning with that of the United States) interpreted that speech to mean. The idea was instantly picked up and exploited by the Soviet propaganda machine--which has been trying since then to accuse the United States of seeking to launch a mammoth arms race in space--and given widespread circulation by those whom Lenin used to call "useful idiots" (idiots who abound in the West and who work unknowingly for the enemy).

True, this monstrous falsification, which duped public opinion, was facilitated by the existence of an American project, an unofficial one but published amid a fanfare of publicity exactly 1 year before Reagan's speech. The general philosophy of this project, which dates back to 1982 and was baptized "High Frontier," was the same: Defense of the United States and its allies against strategic rockets; and a change of strategy actually involving the militarization of space. It called for putting 452 "hunters" into orbit,¹⁾ armed with very conventional missiles that would knock out any rockets passing within their range. This solution is not without an arguable technical basis: Having seen how the Space Shuttle can capture--"by hand"--a satellite in trouble, one can easily imagine how an army of shuttles or other hunters of this type could "police space," by "shooting down" ICBM's or their warheads--which are slower than satellites---and--why not?--by lassoing them and hauling them in? The promoters of this idea were

1) See "The Comeback of Defense, the High Frontier Plan," REVUE DEFENSE NATIONALE, May 1982.

unable to resist the temptation to proclaim that the President had endorsed their theses... Hence the reaction of the reporters: Reagan approves "High Frontier," and thus seeks to launch the space-based arms race. Under these conditions, the apprehensiveness of public opinion with regard to these views is understandable. Although space is already being used largely for military purposes (observation, warning, telecommunications, navigation, etc) by means of the swarms of satellites now passing over our heads, and although space is the obligatory and privileged crossing point for ballistic missiles, the idea of adding to it hundreds of "cruisers," even though for defensive purposes, gives rise to visions of an unlimited and ruinous race to gain "mastery" of it. The "infernal spiral" thus unleashed in the cosmos would set in motion a Sisyphean task that could swallow up endlessly the credits needed to develop the planet; and this, together with the security demands of Earth-based weapons, which already absorb enough of those credits, would be to the detriment of the peaceful progress of humanity.

In reality, radiation weapons appear to have the potential, in the more or less near future, to bring about exactly the opposite of this scenario. Their purpose is rather to render physically prohibitive the militarization of space, to neutralize it, to at least prevent the use of space for the emplacement of offensive weapons. One of the rare disarmament measures already achieved recently, as is known, is the treaty banning the orbiting of weapons. In principle then, the new radiation weapons technology would provide a backup for the law... a means of enforcing it--which has always been the best way to ensure that the law is respected.

Not only would it be materially impossible to use space to station mass destruction weapons there, but space could also not be used as the privileged path for thermonuclear projectiles that was instituted by the SALT 1 Agreement banning antiballistic missiles.

Was it not somewhat odd, indeed contradictory, to "sanctuarize" the skies by guaranteeing the ICBM's immunity there, by treaty, and to pretend by this to have banned their use for offensive military purposes! This paradox was undoubtedly owing to the material impossibility of enforcing respect for morality: The 1972 ABM's were quite incapable of barring the path of all ICBM's. And since immunity was thus granted to land- or sea-based ballistic missiles traveling through space, there was no need to orbit mass destruction weapons whose accuracy and effectiveness would certainly have been less. This treaty was thus easy to adhere to, since it inconvenienced no one. It will be noted that, not a further word has been uttered regarding "orbital bombs" (designed to neutralize antimissile defenses) since the SALT 1 Treaty, which consecrated more than a sufficiency of MAD by means of the missiles being stockpiled on our globe.

Evidently, however, everything changes if the new land- or sea-based weapons are actually capable of preventing all use of space for destructive purposes. That is, if they are capable of preventing the stationing there of missiles, nuclear or other, but also of barring access to the targeted territory.

In the name of what moral principle, then, of what values, can one possibly oppose such total neutralization of the cosmos, if it is now technically conceivable? Who is one deceiving, why and for whom, in seeking to ridicule, by the sobriquet "Star Wars," the SDI [Strategic Defense Initiative] of President Reagan, whose intent is precisely the demilitarization of space by force?

Are these "beam weapons" that make possible such a revolution an illusion? Not for the Americans, who are going to devote \$25 billion to research in this domain over the next 5 years, nor for the Soviets, who have been working at it for a long time now.

Technical Aspects

The true inspirer of this strategic revolution promised by the 23 March 1983 speech is none other than Edward Teller, the father of the H bomb.

He is proposing today the antidote to his own discovery of the early 1950's. It should be noted that Teller, for philosophical reasons, participated in the "High Frontier" project at its inception. He separated himself from it quickly because of the technical solution proposed by its promoters (the orbiting of hunters, the militarization of space). He then opposed it in every way he could and proposed an inverse program, arguing that the "beam weapons" being developed at Livermore and in the USSR could easily knock out the "High Frontier" project's "space hunters." Thus, it would be absurd to invest in a space weapons system that is already outdated by the technological advances under way... A poor example of preventive disarmament! The battle has been raging since then, but Reagan appears to have chosen Teller's solution. Hence the serious misconception referred to above.

The conviction conveyed by Teller and his colleagues at the Livermore Laboratory is gripping. They are absolutely certain the current advances in lasers are bound to put an end quickly to the reign of the ICBM's, just as surely as other technological breakthroughs sent the B 52's to the scrap heap and the cavalry divisions to the museums of military history...

As for the skepticism of their scientific brethren concerning the feasibility of the system, it is none other than that which accompanies all new ideas on the part of those who are not their authors. Was not the H bomb declared unfeasible for years by the most eminent nuclear scientists of the era? Did not Gen Curtis Le May, former World War 2 "bomber" and head of the Strategic Air Command, proclaim during the 1950's that "he would never live to see an operational rocket" in order to save the U.S. Air Force's bombers (whose monopoly was beginning to be challenged by certain young Turks who were advocating rockets)? Today, since his retirement, the general can no doubt take stock of the magnitude of his error, which beyond the least doubt slowed American progress during the 1950's, handed the Soviets the prestige of the grand space premiers (Sputnik, Gagarin, landing of the first object on the Moon, etc), provoked the "missile gap" panic denounced by Kennedy in

1960, brought about the subsequent "crash program" of the 1,000 Minutemen and the 41 Polaris submarines, and perhaps triggered the frightful offensive weapons race. A mistake made in military matters never goes unpunished.

Today, the antimissile laser--to cite but the best-known example from among the possible panoply of radiation weapons--is certainly not the far-out scientific gamble the thermonuclear explosion was 30 years ago. This technology, barely a quarter of a century old, is spreading to virtually all disciplines--research, surgery, industry--as rapidly as is data processing, and its military applications were contemplated from its very birth. In 1962, Marshal Sokolovski wrote in the first edition of his celebrated "Military Strategy":

"It is to be considered that in the future, any missile or satellite will be subject to being destroyed by powerful lasers."

In 1974, Sokolov published in Moscow the diagram of an antimissile laser system strangely resembling those that one can find today published in the American specialized press.

And in 1984, Marshal Ogarkov stated that this new technology would, in due time, be inevitable.

Such a convergence of views should be sufficient to convince even the most skeptical of the inevitability--if not the imminence--of the technological revolution in question. All the world knows and could, if need be, observe proof of the ease with which an electron beam or a laser can pierce and cut through a metal plate. Why not a projectile, particularly a nuclear projectile, which is by nature extremely fragile and whose ballistic trajectory is even more vulnerable than the missile itself?

For thousands of years now, the sole defense against projectiles--the stone, the arrow, the artillery shell, the ICBM--has been that provided by the shield, trenches, concrete, or armor, all designed to attenuate the effects. Survival was assured only if the projectile missed its target, or if it was incapable of piercing the shielding. It was practically inconceivable to prevent its arrival, or to destroy or deflect it in flight, owing to its speed.

It is in this respect that bundles of photons--or other particles--projected at the speed of light are in the process of overturning the established order. Considered as anti-projectile projectiles, their speed is 40,000 times greater than that of their fastest targets--ICBM's [7 km/second]--and instantly annuls the historic advantage that has given missiles their incontestable--and until now uncontested--supremacy. Now, however, it is conceivable to defend against projectiles and not solely against their effects, by destroying them during a flight that lasts many minutes for the most dreaded among them: Nuclear rockets.

In the era of electronics, minutes have become centuries and provide abundant time for the warning, acquisition and tracking, discrimination and destruction of the attacking missile. "Attack is the best defense." A dynamic defense, carried out by rays reaching out to cook their target at 1,000 or 5,000 km--or be it as little as 2 km--is far more captivating and effective than all the shields that can possibly absorb an attacking missile's effects.

Moreover, it should be noted that laser rays travel in a straight line, like light, and are unable to strike "around corners" as curved-trajectory weapons can. The sphericity of the Earth prevents them from striking below the horizon, hence from striking the enemy's territory. And the energy carried by a bundle of particles, while it can attain a level sufficient to destroy or deflect an ICBM, will never, and by far, attain the intensity necessary to destroy a city or even a building. Provided they are based on land or at sea, such weapons are, beyond any question, confined to defensive use, as were ramparts not so long ago, and as are anti-aircraft weapons, land mines, antitank weapons, etc., today.

The security thus attained would therefore be less aleatory than that of today, which is based on powder barrels on top of which the big civilized nations dance a minuet.

From MAD to MAS

Let's suppose now that this formidable revolution is as realizable in due time as is suggested by its proponents, which include Edward Teller, who insists repeatedly that this sea change would be even greater than that of his H bomb.

Let's suppose that in the wake of the B 36, followed by the B 47, then the B 52, the nuclear-warhead rocket were now also to be condemned to oblivion by the progress of an essentially defensive technology that succeeds in controlling the skies and space, from friendly soil, by eliminating all death-dealing missiles: Planes, satellite, cruise missiles and all that today comprises modern "heavy artillery" and the supreme menace to civilization. What would remain of means for the offensive, which is the sole political justification for military aggression and war? Infantry. In other words, ground forces with their vast array of tanks, trucks, and infantrymen at the mercy of defensive neutrons (since, theoretically, the heavy artillery whose function it is to rid them of the latter would be neutralized by the new weapons....).

Offhand, these new technologies make for a triumph of the defense, hence of a form of deterrence that is as effective as and less dangerous than today's.

Moreover, successful tests of antimissile lasers are multiplying more or less everywhere where research on them began. After the bringing down of the five Sidewinders by the airborne laser laboratory in a U.S. Air Force

B 47 in 1983, the (presumed) success of the Soviets against an ICBM in 1981, and the successful interception of a Minuteman by the Americans, AVIATION WEEK of May 1984 reported on work by Messerschmitt in Germany (positive results of a laser against a metallic reservoir at 10 km). And it is a known fact that research is being actively pursued in France.

There are therefore no insurmountable technical problems that could halt the process, nor for that matter any financial obstacles, since there is no reason why batteries of lasers should cost more than the present offensive nuclear arsenal. The fact is that the difficulties are stemming from the political objections being orchestrated by the Soviet Union, which is clearly trying to delay the West in this domain, as it succeeded in doing for 20 years in the case of the neutron bomb. One must ask oneself why...

Soviet Turnabout

Unchallenged champions, not so long ago, of antimissile defense at the time that Krushchev was trumpeting their ability to "kill a fly in the sky" with their "Galosh" rockets, sworn enemies of the "balance of terror" concept when Kossygin was rejecting the MAD strategy, opposing it with an argument comparable to that of Reagan²⁾, the Soviets appear today to be turning their backs on their philosophy of yesterday. They have instantly and brusquely rejected the proposals of 23 March 1983 aimed at developing, simultaneously and concertedly, modern defense systems. This doctrinal about-face is easily explained by the political advantage their strategic effort of the years 1965-75 gained for the Soviets. Obviously, it has not escaped them that in agreeing freely to a total vulnerability (with the SALT 1 Treaty banning antimissile defense), the Americans, haunted by the specter of escalation, self-paralyzed themselves militarily. This facilitated all the more the Kremlin's indirect-strategy ventures on the periphery of its empire (Afghanistan) and in the Third World (Africa, Central America, etc); to say nothing of the pressure it exerted on Europe all the more easily as Europe's great defender across the Atlantic became more vulnerable at home. The latter's "flexible response" and "conventional deterrence" clearly reflect this fear of the nuclear on the part of the Americans.

The Soviets' reasoning is clear: The strategic shield proposed by Reagan, "by creating the illusion of immunity of the American territory, would push the aggressive forces of imperialism into adventuristic actions." In other words, the USSR's freedom of action stemming from the present vulnerability complex of their adversaries would be proportionately reduced. The argument is incontestable.

2) "I don't see why missiles capable of saving a million Soviets would be any more aggressive or destabilizing than missiles capable of killing a million Americans." (1967).

But the Soviets have found in the West, and even in the United States, the usual legion of "useful idiots" dear to the heart of Lenin, to sustain them in this crusade--just as they had been previously sustained with regard to the neutron bomb, and in the dismantling of the Western zones of influence, in the name of anticolonialism, while they themselves were shamelessly extending their own colonial empire! All's fair in war. So much the worse for the "useful idiots"; they got only what they deserve; there is reason to fear, however, that they will persist stubbornly supportive of the MAD philosophy, in which they still believe. For, the problem with all strategies is that they always work in time of peace ... and this is particularly true of the so-called deterrent strategies. The MAD ("balance of terror") system is credited with having maintained nuclear peace over the past 20 years. That may be true, but it must not be forgotten that it favors the Soviet game over all other strategic game plans, by way of the military and political paralysis it has imposed on the Americans, who are prepared to put up with any and everything to avoid a holocaust the principal victims of which would be they themselves. This is understandable, since they themselves laid out the fatal route when they sacrificed all their defenses on the altar of this strange MAD philosophy, which is so contrary to good sense. Civil defense, antimissile defense, antiaircraft defense... all defense has disappeared in the United States. The Soviets, of course, seek nothing other than to maintain such a situation as long as possible.

The real stakes transcend, and by very far, the current peripatetics of the politicomilitary confrontations between the two superpowers. A long-term choice must be made between a system of international security based on the nuclear balance of terror (which has to a great extent demonstrated its effectiveness by conjuring up the risk of war), and another system that would render war physically impossible, at least at the level of traditional armed conflicts, thanks to the technological advances favoring the triumph of the defense.

Is or is not perpetually living on a powder barrel, increasingly stressfully without end, which so preoccupies the younger generation, and when one sees so many arsonists seeking to set it afire, really the best long-term solution? Certainly not... if another solution exists. Current scientific and technological advances offer a better hope: The doing away with offensive weapons, men and missiles, infantry and artillery; the defeat of physical war.

It goes without saying that disarmament by means of the new defensive weapons will be imposed by the natural course of things, as is occurring at the present time with the scrapping of the B 52's. The Americans have already chosen. Reagan's speech was no more a passing fantasy than a plan for militarizing space. This is the first time that a strategic concept has preceded its technique. As of now, the Pentagon is planning, after deployment of the MX's and B 1's, the replacement of the outdated Minuteman by the single-warhead "Midgetman," towards the end of the decade. This, they say, is to be the last offensive missiles for deterrence by terror (MAD). From then on, deterrence by defense (MAS), by "beam weapons," will take over, if

possible by the beginning of the next decade. In due time, the "absolute weapon" of 10 years ago should suffer the sad fate of the B 52.

That point has not been reached as yet and MAD will survive for some time yet. But it is certain that with the reelection of Ronald Reagan the Livermore researchers will not be lacking the necessary funds to actualize the SDI as rapidly as possible under the direction of General Abrahamson. It is virtually certain that they will succeed and, assuming they do, the "stability" brought about through defense will at least seem more reassuring than the present one based on vengeance.

It would be regrettable for us all were the politicians, the diplomats and all the "terror strategists" astride their outdated dogmas to impede the research that holds out such promise for the future security of mankind.

9399
CSO: 5200/2721

FRENCH COMMENTARY ON EUREKA PROJECT

Paris L'UNITE in French 5 Jul 85 pp 13, 14

[Article by Stephen Gere: "Eureka: The Industrialists Have Caught the Ball on the Rebound and Have Adopted Rapid Implementation Policies"]

[Text] European electronic giants did not wait for the conclusions of the Milan summit before coming to an agreement. Eureka is already showing itself to be a superb locomotive for European technology, to which the Swedish, Swiss, Norwegian and, why not, Russian and Japanese freight cars ask only to be attached. President Mitterrand, who set the program in motion, can be satisfied.

At the beginning of the year, Francois Mitterrand announced his intention to make an initiative intended to achieve recovery in Europe. It certainly needed it. A few weeks later, on 18 April in Bonn, he founded the Eureka project. But this European technological initiative still had to be maintained on its baptismal funds by its 10 sponsors before it could hope for a fair future. This was assured at the Milan summit.

Europe is progressing in fits and starts. Remember the last summits, that of Athens, for example. What was being said then? That we had to salvage what we could, the community's only real assets such as the joint agricultural policy, or the European monetary system. Europe was in decline. Since the French president's initiative, the balance has tipped in the other direction. Eureka is an incontestable European success. What are the reasons for this? First of all, because industrialists believe in it. I cannot remember who it was who said that their outlook had changed over the last few months; they have finally understood that Europe is their market. And because the governments have begun to believe in the community again. Even Margaret Thatcher! Perhaps to avoid being accused by industrialists of slowing things down, of trying to put spokes in their wheels again.

As the new minister of industry in 1983, Laurent Fabius let it be known right off that he was a convinced pro-European. At the time, he deplored the lack of enthusiasm of the major industrial companies for collaborating with their partners on the old continent. Joint ventures, those associations between businesses to develop a specific project, were being carried out mainly with American or Japanese firms. And what was true for industry was also true for research. European researchers preferred to go and increase their knowledge across the Atlantic rather than across the Channel, showing little interest in what was happening beyond their immediate borders. Laurent Fabius said then that we were running the risk of becoming subcontractors for the United States and Japan. On the strategic level, this danger was becoming a threat: Europe was opening itself up to every kind of venture, he said. That ominous period seems to have passed.

In contrast with the strategic defense initiative (SDI), President Reagan's famous "star wars," Eureka is not a military project. But behind the high technology research it plans to do in electronics France's reply to SDI can be seen. Hence the German position. For Chancellor Kohl, "the FRG needs the United States as a guarantee of its security, and needs France to develop European integration." There is no possibility that the Germans will refuse to participate in SDI whose estimated cost totals \$26 billion, but neither is there any possibility that they will exclude themselves from the Eureka project. That is why, 48 hours before the Milan meeting, the German and French ministers for research, foreign affairs, and defense agreed to launch Eureka officially in Milan. Thus, the Paris-Bonn axis once again became the backbone of the European community. At a stroke, Milan seemed a cinch.

Another series of events was to push Eureka ahead. On Friday 21 June, exactly a week before Milan, in the presence of Hubert Curien, minister of research, Jean-Luc Lagardere, president of Matra, and his Norwegian counterpart of Norsk Data signed a co-operation agreement as part of the Eureka program. The task is to develop in 3 years a compact supercomputer for which at the present time, European research centers and universities are completely dependent on the Americans. The Norsk Data-Matra agreement will benefit from the openness of the European public markets. The following Tuesday, Thomson (France), Philips (Netherlands), Siemens (FRG) and GEC (Great Britain) signed an agreement in the area of microelectronics. The four European giants undertook to "examine the various aspects of cooperation envisaged within 6 months of a decision by the governments to launch the Eureka project."

Six months to see what there was to develop, how to do it, and who would finance it. But on condition that the governments would commit themselves to Eureka. It was a way of putting pressure on the Ten 3 days before Milan. At Thomson, they were

not hiding the fact: "In Milan, furthermore, we will publish a communique to invite other industrialists to join us." Knowing that within 5 years the power of electronic components has increased 100 times over and that Europe's trade balance in electronics showed a deficit of Fr 9 billion last year, the industrialists decided that it was imperative that they do something. Technologically, they are in no way behind the Pacific area: Philips is the world's largest producer of components and second in electronic goods sold to the general public; Thomson and GEC are respectively second and third in the world in electronic goods sold to the general public, and finally Siemens is Europe's leading producer of electronic medical equipment. What they lack is size; through the Eureka program, they want to mobilize the same amounts for research and development as the Americans and Japanese devote to them. As a standard of comparison, people often mention that IBM's research budget is equal to the entire turnover of Bull, France's number one in data processing.

The Chip of the Future

The four companies together will develop strategic components particularly for facilitating air and ground traffic control, space surveillance, and from space the automation of the means of production, the television of the future, and civilian and military applications. But Thomson and Siemens are already perfecting the chip of the future, the "Europrocessor," and as part of the Esprit program the four are continuing research on gallium arsenide circuits, a chemical constituent which makes it possible to integrate many more functions in less space.

Other agreements are in the air. Like Matra and Norsk Data, Bull and Siemens are working on a project in scientific calculation, but it will not be completed until the end of the 1980's. The French and the Italians are also considering cooperating on industrial lasers. Even before it was officially launched, Eureka was gaining ground. Industrialists adopted rapid implementation policies. Eureka, which was intended above all as a stimulus for the electronic industry, has already fulfilled part of its mission. Francois Mitterrand, who set things in motion, can be satisfied.

Nevertheless, Milan did not settle everything. The terms and features of the project can only be defined at the end of long studies by experts. On 17 and 18 July, a committee made up of two ministers from each of the community's countries will meet to deal with this question. It is also known that a new European technological standard will be defined, called the Eurotype or Eurekatype. But what will Eureka's organizational framework be? The French had thought of an agency; that aroused opposition especially on the German and British side. In fact, very little structure is wanted, quite the opposite of a ponderous and

budget devouring administration. The IDS is headed up by a single person. Financing is another problem: at Thomson, they are waiting to find out what level of self-financing will be granted to the various projects on the agenda of "the agreement of the four."

It seems that they are leaning towards a tripartite agreement. On the one hand, the companies would finance part of the actual projects in which they wanted to get involved. Other contributions would be made only as financial assistance for these projects. Priority is given to industrial agreements concerning specific programs. The governments would contribute funds from the budget of their research ministries. The figure of Fr 1 billion is often mentioned for France. Finally, the European community would make its own contribution. The British, moreover, have just raised the rates of their value added tax to increase their financing of the community budget.

This last point, however, raises another problem. The community in its own right has a technological development project of its own. Jacques Delors thinks it important. Moreover, he is contemplating increasing by 8 percent the funds contributed by the EEC for research and development. It seems obvious that Eureka risks duplicating this project. Especially since the French president's project detracts from the prerogatives of the president of Europe. For its part, Eureka is an extracommunity program. Were not the Norwegians of Norsk Data among the first to have concluded an agreement in the context of the Eureka program? Other countries are very interested; Roland Dumas, the French minister of foreign affairs, confirmed that four other countries, in addition to the Ten and Spain and Portugal, have been invited to the meeting of 17 and 18 July: Norway, Sweden, Switzerland, and Austria. Also interested in the project are the United States, Japan and even eastern countries like Bulgaria and the USSR.*

The Americans have already made offers to Thomson for its expertise in gallium arsenide. In fact, the United States do not want to be surpassed by the Europeans in technologies which the latter master better than they do. Since the Bourget salon meeting, the question of French participation in "star wars" has been clearly established. French firms can become involved on an individual basis in cooperating with American companies in those projects which interest them. For Matra and Thomson, matters are just as clear: "We do not see why we should reject American markets," these firms stated. All-out efforts are being made in

*During last week's meeting in Paris between French and Soviet representatives, the latter showed an obvious interest in the Eureka project concerning which they asked to be provided with any useful details.

technological and commercial cooperation. At the moment, this is limited to electronics. But voices are already being raised in Europe asking that it be extended to other spheres such as biotechnology.

9824
CSO: 3698/630

REPORT ON EUREKA DECISIONS AT PARIS MEETING

Paris AFP SCIENCES in French 18 Jul 85 pp 1-3

[Article: "Official Creation of Eureka"]

[Text] Eureka has been born. Now it has to be made to work and its research projects have to be financed. The ministers for foreign affairs and research from 17 European countries decided on 17 July in Paris that Eureka was established and that their next meeting before 15 November in Bonn (FRG) should see to setting up specific research projects.

In their final statement, which established a provisional organization--namely, the office of secretary entrusted to France (ambassador Claude Arnaud)--, the ministers of the 17 countries and the representatives of the European committee, including its president Jacques Delors, reaffirmed their "strong support" for the Eureka project for the renewal of European technology, launched by President Francois Mitterrand last April.

The French president, himself inaugurating the first sessions of Eureka, contributed Fr 1 billion to the funding of the new project: additions to the budget for the most part (Fr 700 million and Fr 300 million from the industrial modernization fund), which can be allocated to the industrialists' joint research work.

Although several countries said they were prepared to support the projects financially, France was the only one to commit itself for a specific amount. A West German spokesman stated that the FRG for its part would also provide financing but that no specific amounts were budgeted a priori in the 1986 budget for Eureka.

Hubert Curien, the French minister for research and technology, pointed out that the final statement was "lapidary and condensed." In the opinion of the delegates, there was a great deal of exchange during the round table discussions on 17 July and many proposals were made.

This positive outlook was also shared by the heads of large French businesses and research organizations who were present at the inaugural session, some of whom maintained that whereas at the beginning it could be feared that Eureka was only a political idea, things were now moving ahead very quickly and that what was at stake at the meeting was genuine.

The important role of industrialists was stressed by several delegations; they are the ones who must propose projects for joint research which would then be examined by a council--several proposals were made concerning its organization--then financed on a case by case basis with decisions being made concerning the specific setup, goals, and completion time.

Several delegations--including the British among others--insisted on the flexibility and small size that Eureka's organizational structure should have. According to these delegations, the size of the commercial markets for products benefiting from research carried out in the Eureka program should also be a major concern.

Sir Geoffrey Howe, foreign office secretary, emphasized that "one of Eureka's key elements should be its flexibility," and he also declared that "products should have a world market potential, and should directly affect the daily life of Europeans."

The German representatives--particularly Hans Dietrich Genscher, minister of foreign affairs--approved the philosophy of the Eureka project, agreeing with France on the importance of what was at stake, and insisting on the nonbureaucratic character which the administration of the project should possess. In his view, industrialists should have a large part in financing, in proportion to the directly applicable character of the work: the more basic the research, the greater should be the part of governments, the committee and other organizations in financing it.

The Germans also stressed that the European Committee should occupy an important place in the running of Eureka, both because of its experience with European scientific programs and its financial resources. In comparison with the total of civilian research budgets of the member states, the EEC's research budget represents 10-15 percent of it, and 20-30 percent by its incentive effect.

Genscher referred, moreover, to the strategic defense initiative (the American SDI or "star wars") to do away with any misunderstanding. "Eureka is a necessity, with or without SDI. Neither with respect to its motivation, nor with respect to its objectives does Eureka represent a substitute for SDI or an alternative to this initiative," he declared.

Curien's Address

"The goal of the Eureka program," Hubert Curien stressed to the sessions on European technology, "is to bring to completion a certain number of specific projects, affecting areas where it seems necessary to increase collaboration between European states. The idea is to develop European potential as a whole in research and technology."

"A preliminary list of possible subjects was proposed by France in Milan, taking into account the ideas considered by industrialists and public authorities, and the initial reactions our representatives were able to ascertain during technical discussions with our European partners. This list is simply a proposal, and is completely open to amendment. It seems to me that some suggestions have already received enough approval that their realization in the framework of Eureka may hardly be doubted."

"The decision as to what projects will be adopted as part of Eureka should be made according to a certain number of criteria. A given project should:

- lead to the development of advance technology with economic or strategic importance;
- result in the realization of a product with original performance, leading to a market for applications;
- result in the involvement of several partners: industrialists or public institutions which make a substantial contribution to financing;
- necessitate the cooperation of several European countries for the realization of the project: the pooling of know-how, resources, a united front where applications are concerned etc."

"It is the very spirit of Eureka," emphasized Curien, "to focus on specific, concrete projects, carried on under industrial type job supervision by a project team completely responsible for the realization of the product with which it has been entrusted. It is important, therefore, that we bring to maturity a certain number of proposals. By 'bring to maturity' I mean bringing together specialists from the different countries concerned who have the responsibility for defining precisely all the tasks to be accomplished for the completion of each project, identifying the problem areas, estimating the cost with full knowledge of the facts, and deciding who will see to its realization."

"In conformity with the pragmatic approach we have followed in the Eureka program," the French minister of research continued, "I propose to favor the projects themselves and to entrust the oversight of each project to an industrial type of administration in which companies and public or private institutions would take part according to their interest, illustrating the basic principle of variable geometry. They would be managed by a board

of directors made up of shareholder representatives."

"What can we do to promote the Eureka program during the months to come? First of all, we must make an appeal to our industrialists to specify the projects which have been publicly announced and to propose new multinational projects. It will also be necessary for the authorities in some of our countries to contact one another to organize joint working sessions for those questions where such steps would be useful."

"These authorities should also endeavor to study the possibility of providing financial support in one form or another for this or that project whose strategic importance would seem to justify such support. Similarly, the community could profitably study the various contributions it could consider making to each of the projects being worked on," Curien concluded.

9824
CSO: 3698/630

CONFERENCE ON DISARMAMENT

FINNISH PAPER VIEWS U.S., USSR NUCLEAR ARMS INITIATIVES

Helsinki HELSINGIN SANOMAT in Finnish 7 Aug 85 p 2

[Editorial: "Two Proposals for Nuclear Test Ban"]

[Text] In recent days the super powers have said a lot about a nuclear test ban so that one can believe that the issue will be finalized at the November summit meeting in Geneva. The discussion is also accelerated by the next to the last follow-up meeting on the treaty to prohibit nuclear weapons, in which at least 111 countries without nuclear weapons will attempt to make the super powers live according to their promises and stop the development of nuclear weapons as well as reduce their numbers.

Some constructive steps have been observed in recent days in the series of nuclear tests. The United States invited scientists from the Soviet Union to observe a nuclear test in Nevada and measure its strength with their own instruments. At the same time the Soviet Union announced that it will unilaterally halt nuclear testing until the end of the year and will continue the freeze if the United States joins in the ban on testing.

Now at the beginning of the second term President Ronald Reagan stated that his country will stop with the present series of tests if the Soviet Union is still observing a freeze at that time. This is, however, a vague promise in the opinion of Radio Moscow. In the eyes of outsiders the timing is difficult since each side is testing at its own pace.

It took 5 years to negotiate the first test ban treaty in the atmosphere in 1963. The United States has demanded on-site inspection as a condition for a complete ban on nuclear testing. The Soviet Union, on the other hand, considers on-site inspection to be mere espionage. The argument has gone on for years.

This time there is a new encouraging refrain in the chorus of competition. Indeed, President Reagan has expressly stated that his space defense initiative SDI will make nuclear weapons obsolete. As objectives have changed along with the change in strategic thinking, continued nuclear tests will perhaps no longer be considered as sensible from the point of view of real or imagined security.

The Soviet Union is also faced with a credibility threshold. Even its most visible unilateral freezes offer no assurance if it is not prepared to accept inspections. There should be no difficulty in opening up a clean house.

There is a seed of trust in the test ban debate. If the super powers negotiate compromise with respect to a ban as well as inspection, an opportunity will open up for progress in other arenas also. The principle of inspection may be advanced at the Geneva arms limitation talks as well as in measures to increase trust at the CSCE meeting in Stockholm. This would be a rather impressive step toward progress.

10576
CSO: 5200/2736

NUCLEAR TESTING

USSR ASSAILS U.S. 17 AUGUST NEVADA TEST

U.S. Seeks 'Military Superiority'

LD191515 Moscow TASS in English 1455 GMT 19 Aug 85

[Text] Moscow, August 19 TASS -- TASS military news analyst Vladimir Bogachev writes:

On August 17 the United States conducted at a Nevada testing range an underground test of a nuclear device. It was the first U.S. nuclear test after the Soviet Union had unilaterally halted all nuclear explosions on August 6.

Specialists justly point out that the problem of ending nuclear explosions is a sort of litmus test to determine the true position of any state on the entire complex of the problems of arms limitation and reduction. Tests are a catalyst of the arms race and their continuation is incompatible with a course of normalizing the world military-political situation.

Having run out of its scarce stock of poor "arguments" intended to justify the U.S. refusal to follow the Soviet example and halt nuclear explosions, the Reagan administration graphically demonstrated in practice at the Nevada range the worth of its avowed intention to make nuclear weapons "impotent and outdated".

Washington's clumsy ploys, like an invitation to Soviet observers to monitor nuclear explosions, are a poor cover for the Reagan administration's course of carrying on the nuclear arms race and of testing and improving nuclear weapons in the illusory hope of achieving military superiority.

The world public, worried by growing tension in international relations, by the threat of the spread of the nuclear arms race into space and by the escalation of the danger of military catastrophe, has viewed the decision of the Soviet Union to halt all nuclear explosions as another exceptionally important goodwill gesture which opens a realistic possibility to slow down and eventually reverse the arms race.

The overwhelming majority of observers agree that the ban on nuclear explosions or, initially, the U.S. joining the Soviet moratorium, would be a simple and reliable measure leading to a tangible and realistic step on the road of removing the threat of nuclear war.

The new U.S. nuclear explosion in Nevada is a challenge to world public opinion. The mayor of Hiroshima, which was the first victim of U.S. atomic maniacs, said in a telegram to the U.S. ambassador in Japan that, having resumed testing, Washington is trampling the will of the peoples, who demand an immediate end to all nuclear explosions.

World 'Indignation'

LD201905 Moscow Domestic Service in Russian 1500 GMT 20 Aug 85

[Text] The nuclear test explosion carried out by the United States on 18 August has provoked a wave of indignation throughout the world. At the microphone with a commentary on the latest news is the author Kim Gerasimov.

[Gerasimov] In the words of the venerable American observer, James Reston, the present Washington administration's approach to policy is based on it being more important to instill fear than trust. If that is the case, then the administration has doubtlessly achieved new great success in its policy, as its actions are capable of inspiring fear even in America's friends for their lack of responsibility. For a good half of August, mankind lived without nuclear test explosions. Moreover, it even experienced a certain hope that perhaps there would never again be such explosions at all.

As you know, the moratorium on any nuclear explosions, announced unilaterally by the Soviet Union, came into force on 6 August for the period up to 1 January of next year. Our country announced that it is ready to observe this moratorium even longer if the United States joins in. Washington -- and everyone knows this as well -- hastened to declare that the Soviet proposal was unacceptable. Nevertheless, the very fact that the United States did not carry out any explosions for some time after 6 August raised a certain degree of hope among the international public. Suddenly good sense prevails in Washington after all, suddenly they are paying attention to the view of the majority of mankind after all.

These hopes became null and void on 18 August. It turned out that Washington was just preparing for the next series of tests, which began on 18 August with an underground nuclear explosion at the proving ground in Nevada. The explosion in Nevada was legitimately perceived by the world as a signal of the United States' refusal to embark on the path leading to winding down the nuclear arms race. After all, halting tests would put an end to the development of new types of nuclear weapons as well as to the testing of the reliability of already existing ones; this in turn would lead to a sharp acceleration in the aging process of accumulated nuclear reserves. Favorable conditions would be created for achieving an agreement on halting nuclear tests and for progress towards the liquidation of nuclear weapons altogether. There would be the prospect for mankind, finally, to escape the curse that has been hanging over it for 40 years now, since the American bombings of Hiroshima and Nagasaki.

Washington, however, preferred not to take advantage of the chance offered it by the Soviet initiative to assist in a decisive improvement of the political climate on earth. In international relations it continues to bank not on trust, but on fear. It continues to show flagrant contempt for the interests of the whole of mankind, and the explosion in Nevada reminds one of this.

CSO: 5200/1369

SPRS TAC-85-029
10 September 1985

NUCLEAR TESTING

SOVIET MEDIA REPORT EXPRESSIONS OF SUPPORT ON MORATORIUM

WFTU Statement

LD021714 Moscow TASS in English 1457 GMT 2 Aug 85

[Text] Prague, 2 Aug (TASS)--The World Federation of Trade Unions supports the new Soviet initiative--to stop unilaterally any nuclear explosions, says a statement circulated here today by that international organization. This initiative makes a valuable contribution to the effort of all working people to promote peace and stop the arms race. And it comes as a logical extension of other constructive proposals of the USSR.

The World Federation of Trade Unions urges all working people, all trade union organizations of the world to support the new Soviet proposal and demand that all the states possessing nuclear weapons introduce an immediate moratorium on their testing. This could contribute toward the achievement of international agreement on the termination of the arms race and prohibition of space militarization, the statement says.

Academician, Peace Committee Aide

LD061743 Moscow Television Service in Russian 1430 GMT 6 Aug 85

[From the Vremya newscast; talk by Academician Roald Sagdeyev]

[Text] The moratorium announced by the USSR on ceasing all nuclear explosions comes into force today. Taking part in our program is Academician Roald Zinnurovich Sagdeyev, deputy chairman of the Committee of Soviet Scientists for Peace and Against the Nuclear Threat, and Lenin prize winner.

[Begin Sagdeyev video recording] The very important first step of the moratorium on all nuclear tests, announced by our country starts on the 40th anniversary of the tragic event in Hiroshima. Already voices are being heard saying that this is, allegedly, of no consequence and that it is a very complicated thing to implement. There are experts across the ocean who say that, allegedly, an underground nuclear test is impossible to verify, that some special measures are needed. Long and patient discussions were needed with the scientific facts in one's hands--facts based on data provided over decades by our seismologists, who contend that it is possible to establish that a nuclear explosion has taken place on any continent no matter how far away they are from the site of the

explosion, even if this explosion takes place in the very deepest subterranean cavity. And then they say: Listen, let us stop playing about, let us put our cards on the table; yes, we need these tests because a program to modernize our nuclear weapons is in full swing. It is not only under way, but is expanding and moving into new areas. Nuclear charges have already appeared which are essential in the future, hypothetical program of the so-called strategic missiles and nuclear warheads.

The moment has come when one can go no further. As Albert Einstein, that ardent fighter against nuclear weapons, said, the moment is coming when one must take account only of actions and not of arguments. And such a moment of truth has arrived.

This appeal to halt the nuclear arms race was also to be heard in the statement by Mikhail Sergeyevich Gorbachev, general secretary of the CPSU Central Committee. Once the first step is made, and all and every type of nuclear tests are halted, then one can calmly sit down at the conference table and find the next steps which would lead to a considerable reduction in nuclear arsenals, right up to their total elimination. This step has long been dreamed of by everyone who understands the extent of the danger of continuing nuclear tests, and therefore it is met with approval by the broadest circles of the international public.
[end recording]

CSCE Committee Statement

LD061723 Moscow TASS in English 1652 GMT 6 Aug 85

[Text] Moscow, 6 Aug (TASS)--"The Soviet public received with a feeling of profound satisfaction the Soviet Union's decision, announced by Mikhail Gorbachev, general secretary of the CPSU Central Committee, to stop unilaterally any nuclear explosions," says a statement issued here by the Soviet committee for security and cooperation in Europe.

"We are firmly convinced," the statement underlines, "that a mutual moratorium of the USSR and the United States on any nuclear explosions would serve as a good example for all nuclear-weapon states.

"The termination of nuclear weapon tests by the states which possess such weapons would become a major step toward disarmament. The Europeans would see in that sensible move a contribution to efforts to rid our continent of the threat of nuclear destruction. That would also boost hopes of the whole of mankind for the complete prohibition and elimination of nuclear weapons.

"The Soviet public expects that in conjunction with the 40th anniversary of the atomic bombing of Hiroshima and Nagasaki the leadership of the United States of America, despite all the prejudices, will react with specific actions to the Soviet example and stop its own nuclear explosions in a move that would be a fitting reply to the peaceful aspirations of all people on earth.

"The Soviet public urges all peace-loving forces in Europe and the world over to work with even greater vigor and sense of purpose toward the termination of the nuclear arms race on earth and its prevention in space," the statement says.

Worldwide Demonstrations

LD062003 Moscow Television Service in Russian 1445 GMT 6 Aug 85

[From the "World Today" Program presented by Igor Kudrin]

[Text] Today, the 40th anniversary of the barbarous bombing of Hiroshima, the new USSR peace initiative enters into force. Our country is unilaterally halting all nuclear explosions. In his statement, Mikhail Sergeyevich Gorbachev, having recalled the Hiroshima tragedy, said: the echo of this explosion calls out to the conscience and reason of every person. Indeed, it does. Reports are coming in from the capitals of various countries of the world--from Washington, Rome, London, Delhi, Madrid, Oslo and Athens--about peace marches, meetings, demonstrations and conferences. Greek peace supporters gathered around the ancient Acropolis [video shows shots of mass demo gathered around Acropolis] participants in these events demanded that there should be no more Hiroshimas and Nagasakis, that the nuclear arms race should be halted. They called on the United States to accept the new USSR peace initiative.

During his latest press conference, President Reagan announced the refusal of the United States to join in the moratorium introduced by our country from today. He said that a bilateral moratorium is advantageous only for the USSR. The same old story! U.S. propagandists have for a long time been trying to frighten their fellow citizens that research in the USSR has gone so far that it must be caught up with urgently. And for that reason, he said, what sort of moratorium is it if the Soviet Union, to use their expression, is traveling in a 1984 model car, and poor America in an obsolete 1964 model.

One highly-placed White House official expressed himself more honestly on the subject. According to the WASHINGTON POST, he said: It is necessary immediately to reject the Soviet proposal so that for the U.S. people the hope did not appear that such a moratorium could be introduced. [video shows mass demonstration in Athens; Reagan at desk, flanked by U.S. flags, talking to journalists]

UN Association Statement

LD081511 Moscow TASS in English 1502 GMT 8 Aug 85

[Text] Moscow, 8 Aug (TASS)--The Soviet Union's United Nations Association issued a statement which says that the horrible act of the atomic bombing of Hiroshima and Nagasaki 40 years ago was actually an attempt to intimidate the Soviet Union with the show of the U.S. military might, to claim world domination.

The Soviet Union is for curbing the nuclear arms race on Earth, and for preventing its spread to space, the statement says. In its striving to set a good example, the Soviet Union decided to stop unilaterally all nuclear explosions from 6 August of this year. The statement of the General Secretary of the CPSU Central Committee Mikhail Gorbachev to this effect was met with approval of the broadest circles of the world public.

Advancing its numerous peace initiatives aimed at curbing the arms race, at safeguarding and consolidating peace and international security, the Soviet Union is guided by the interests of entire humanity.

TASS Roundup

PM161832 Moscow PRAVDA in Russian 15 Aug 85 First Edition p 4

[TASS roundup: "Honest and Open Step"]

[Excerpts] In deciding to declare a unilateral moratorium on nuclear tests and taking this honest and open step, the Soviet Union was guided by the desire to promote the ending of the nuclear arms race, to encourage the United States and the other countries with nuclear weapons to do likewise, and to strive to conclude an international agreement on a total and universal ban on nuclear weapon tests. That is the theme of the extensive international responses to M. S. Gorbachev's answers to a TASS correspondent's questions. The foreign press is sharply critical of the negative stance taken by the Washington administration toward the USSR's major new initiative, pointing out that U.S. ruling circles are mainly involved in seeking ways of most skillfully avoiding responding positively to this initiative.

Replying to the TASS correspondent's questions, the Soviet leader, the NEW YORK TIMES writes, touched upon an extremely important question. The Soviet leader examined a number of U.S. accusations--one after another in typical lawyer's fashion. Clearly replying to the U.S. side's claim that the USSR had come out publicly with initiatives on introducing a moratorium on nuclear weapon tests instead of officially proposing these initiatives at the Geneva arms control talks, the Soviet leader said that Moscow is prepared to discuss as an integral whole in Geneva the question of ending nuclear weapon tests. It is not a question of where to examine the ending of nuclear weapon tests, he stressed. It is important to examine this problem seriously and without delay.

"M. S. Gorbachev," the WASHINGTON POST writes, "stated that the USSR will strive to conclude an agreement banning nuclear explosions which would include an appropriate system of both national and international monitoring measures. Unilateral steps will not stop nuclear tests: international agreement is needed to resolve the problem once for all." Washington, the newspaper goes on to say, rejected the Soviet moratoriums, putting forward instead the "counterproposal" of sending observers to the test sites where underground nuclear explosions are held. However, M. S. Gorbachev pointed out that the Soviet Union is against the ending of tests being replaced by their continuation in the presence of observers. Moscow is calling for a resumption of the trilateral talks on ending nuclear weapon talks between Britain, the United States, and the USSR.

The Soviet Union's decision to end all nuclear explosions effective 6 August and its proposal to establish together with the United States a moratorium on nuclear tests have been assessed by arms control specialists as a very important step. C. (Ebindzher), leader of the program for energy and strategic

reserves at the Georgetown University center for strategic and international studies, stated. Many eminent U.S. politicians supported the Soviet proposal, he noted. However, the administration's reaction remains negative. Above all, the Pentagon and the National Security Council are against a moratorium on nuclear tests.

Britain's REUTER agency reports: The Soviet Union has stated that Moscow has broken off its program of nuclear tests with a view to introducing a unilateral moratorium on nuclear explosions, and has by no means completed this program, as Washington is claiming. Now the USSR is again calling on the United States to take similar measures. The Soviet Union believes that the two countries have adequate monitoring means to guarantee the impossibility of a mutual test ban being violated.

UN Secretary General

LD150422 Moscow TASS in English 0410 GMT 15 Aug 85

[Text] New York, 15 Aug (TASS)--The initiative of the Soviet Union which has been observing since 6 August, this year, the unilateral moratorium on any nuclear explosions, promotes the reaching of an agreement on the termination of nuclear weapons tests and in this way brings us closer to nuclear disarmament, Perez de Cuellar had said. Commenting on the answers of the General Secretary of the CPSU Central Committee Mikhail Gorbachev to questions of a TASS correspondent, he pointed out that the new initiative of the USSR which has urged the United States to join in this action was met with approval by the world community.

Hamburg CP Statement

LD191223 Moscow TASS in English 1145 GMT 19 Aug 85

[Text] Hamburg, August 19 TASS -- The Hamburg organisation of the German Communist Party has released a statement here today, saying that the United States has no right to ignore the world public opinion which highly evaluated the Soviet Union's decision unilaterally to suspend any nuclear blasts. Washington, the statement stresses, is bound to respond to the new Soviet peace initiative with corresponding constructive steps.

The Communists of Hamburg and of the entire Federal Republic of Germany will make efforts jointly with the West German anti-war movement to force the U.S. Administration to terminate nuclear weapon tests and to support this way the Soviet moratorium, the statement by the Hamburg Communists notes.

West Germans, who hold dear peace in Europe and all over the world, the authors of the statement underline, have an understanding of and support the Soviet Union's sincere concern about strengthening peace and stability and creating genuinely auspicious conditions for reaching an agreement on the cessation of nuclear testing.

Statements at Disarmament Conference

LD201239 Moscow TASS in English 1228 GMT 20 Aug 85

[Text] Geneva, August 20 TASS -- The Soviet Union's decision to stop unilaterally any nuclear explosions, starting from August 6, 1985, is in the focus of attention at the Disarmament Conference. Delegations of the socialist countries, several non-aligned nations, for instance, India, Mexico, Burma and Pakistan welcomed the USSR's constructive step.

The head of the Mexican delegation, Nobel Prize Winner Garcia Robles appealed to the United States to join the moratorium on nuclear blasts, announced by the Soviet Union, and thus create a necessary situation for a successful holding of talks on a comprehensive ban of nuclear weapons tests. Czechoslovakia's representative Milos Vejvoda, speaking at the conference today, stressed that the problem of banning nuclear testing should be resolved without delay.

The prohibition of nuclear tests by all countries around the world would be a radical decision, since it will put a serious obstacle in the way of the development, testing and perfection of new types and systems of nuclear weaponry, and thus slow down and ultimately reduce to nought the race of nuclear armaments.

The United States' representative alone opposed the moratorium at the conference. His attempts to cast aspersions on the USSR's clear-cut position received a befitting rebuff from many delegations. It was noted at the conference, specifically, that available national technical means are quite sufficient for exercising control over nuclear tests.

The head of the Soviet delegation, Viktor Israelyan, said in his speech that the USSR is ready to sit down any moment without delay at the negotiating table with a view to concluding as soon as possible a treaty banning all nuclear weapons tests for all times, without advancing any preconditions.

The USSR is prepared to conduct these talks in any form, noted the Soviet delegation's statement, that would be acceptable to the other side, either within the framework of the tripartite talks or multilateral negotiations at the Disarmament Conference. The USSR actually tabled for consideration to the Disarmament Conference basic provisions of a corresponding agreement. Jointly with the other socialist countries it submitted to the conference a mandate of a special committee envisaging the holding of practical negotiations.

Soviet Parliamentary Group

LD201719 Moscow TASS in English 1716 GMT 20 Aug 85

[Quotation marks as received]

[Text] Moscow, August 20 TASS -- Follows full text of Soviet parliamentarians' address:

"An address by the Parliamentary Group of the USSR to the members of parliament of the countries of the world:

"The Parliamentary Group of the USSR, feeling profound concern over the ongoing nuclear arms race, is calling on the parliamentarians of other countries actively to press for an end to further build-up of nuclear arsenals and to further sophistication of nuclear weapons.

"Mikhail Gorbachev, general secretary of the CPSU Central Committee, is known to have announced the Soviet Union's decision unilaterally to discontinue any nuclear explosions from August 6, this year. The moratorium is intended for the period ending on January 1, 1986. But it will remain in effect longer than that if the United States of America for its part will refrain from carrying out nuclear explosions.

"This bold action of the Soviet Union has manifested the Soviet people's will for peace and their determination through practical deeds to promote the lessening of the nuclear threat and ultimately full elimination of nuclear weapons everywhere".

"By introducing the unilateral moratorium on nuclear explosions, the Soviet Union was the first to take a practical step. If the United States follows suit, a bilateral moratorium will be set. Such a moratorium could serve as a stimulating example to the other nuclear powers as well.

"It is obvious that complete and general cessation of nuclear weapon testing is now acquiring particular topicality. Because the tests are conducted in order to create ever new types of nuclear weapons and to sophisticate the already existing ones. If there are no tests, the nuclear arms race will be slowed down and will subsequently become impossible altogether.

"The nuclear arms race is fraught with tremendous dangers for the future of the entire world civilization. It is conducive to higher tension in the international arena and to an increase in the war threat, siphoning off colossal intellectual and material resources from creative goals".

"Therefore, a ban on nuclear tests is the cause which involves the interests of all states and peoples. An attitude towards this matter is the indicator of the intentions of states and of the trend of their political courses. In this matter no one should be a detached observer.

"The duty of the parliamentarians of all countries -- nuclear and non-nuclear, big and small ones -- is to take a clear stand against a continuation of nuclear weapon testing. This is required by the interests of all the peoples. The parliamentarians, remembering the tragedy of Hiroshima and Nagasaki, should pool their efforts to secure that nuclear ashes never fall out on the earth again.

"Coming forward with this address, the Parliamentary Group of the USSR hopes that all parliamentarians will declare resolutely for complete and general prohibition of nuclear weapon testing and in support of steps which lead to this goal".

CSO: 5200/1369

END